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Observations of the Great Comet (b) 1882 *made at the Cambridge Observatory with the Northumberland Equatorial and Square Bar Micrometer.*

(*Communicated by Professor J. C. Adams, M.A., F.R.S.*)

Greenwich Mean Time.	Aberration Time.	Apparent R.A.	Parallax.	Apparent Decl.	Parallax.	Comp. Star.	No. of Comp.
1882.		h m s	s	° ′ ″	″		
Oct. 25·70448	−·00842	10 5 20·019	−0·179	−17 24 19·81	+5·39	*a*	5
		19·724		34·22		*b*	5
·72215	−·00842	10 5 17·982	−0·157	−17 24 45·81	+5·47	*a*	5
		18·029		59·33		*b*	5
		c + 1 43·167		*c* + 11 37·78		*c*	5
·73970	−·00842	10 5 16·598	−0·132	−17 25 8·30	+5·54	*a*	5
		16·523		20·72		*b*	5
		c + 1 41·831		*c* + 11 17·89		*c*	5
26·69713	−·00843	10 3 54·135	−0·183	−17 47 3·22	+5·37	*d*	5
·70755	−·00843	10 3 53·366	−0·171	−17 47 15·67	+5·42	*d*	5
		e + 1 8·172		*e* + 3 29·70		*e*	5
·72058	−·00843	10 3 52·289	−0·154	−17 47 29·28	+5·48	*d*	5
		e + 1 7·166		*e* + 3 16·46		*e*	5
		f + 0 49·037		*f* + 8 19·24		*f*	5
29·71667	−·00847	9 59 25·380	−0·144	−18 54 17·89	+5·52	*g*	5
·72439	−·00847	9 59 24·524	−0·133	−18 54 23·54	+5·55	*h*	6
30·71791	−·00848	*i* + 2 4·185	−0·137	*i* − 9 49·70	+5·54	*i*	5
·72769	−·00848	*j* + 1 12·289	−0·123	*j* − 4 36·50	+5·57	*j*	5
·73965	−·00848	*i* + 2 2·318	−0·105	*i* − 10 19·85	+5·61	*i*	5
		j + 1 11·034		*j* − 4 49·15		*j*	5
Nov. 1·71772	−·00850	9 54 42·313	−0·127	−19 59 58·92	+5·57	*k*	7
		42·523		58·65		*l*	7
2·70519	−·00851	9 53 6·800	−0·139	−20 21 22·35	+5·54	*m*	2
·70914	−·00851	9 53 6·420	−0·134	−20 21 27·34	+5·56	*n*	3
·71242	−·00851	9 53 5·772	−0·130	−20 21 32·08	+5·57	*o*	6
5·67997	−·00854	*p* − 0 13·977	−0·158	*p* − 7 6·77	+5·48	*p*	5
·70310	−·00854	9 47 59·632	−0·126	−21 25 6·20	+5·59	*q*	5
·70574	−·00854	9 47 58·761	−0·122	−21 25 3·78	+5·60	*r*	3
7·69393	−·00855	9 44 26·324	−0·128	−22 6 32·87	+5·59	*s*	5
·71300	−·00855	9 44 24·540	−0·099	−22 7 3·30	+5·66	*t*	6
		24·366		6 54·47		*s*	6
8·69769	−·00855	9 42 35·101	−0·117	−22 27 11·11	+5·62	*u*	6
		31·674		8·88		*v*	6

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Greenwich Mean Time.	Aberration Time.	Apparent R.A.	Parallax.	Apparent Decl.	Parallax.	Comp. Star.	No. of Comp.
1882.		h m s	s	° ′ ″	″		
Nov. 9·68469	−·00856	9 40 43·331	−0·133	−22 47 12·04	+5·58	*w*	6
		42·582		12·41		*x*	6
·69780	−·00856	9 40 41·674	−0·111	−22 47 29·60	+5·64	*w*	6
		41·184		28·95		*x*	6
10·66723	−·00857	9 38 48·263	−0·150	−23 7 4·65	+5·53	*y*	5
		47·828		5·01		*x*	5
·67525	−·00857	9 38 47·333	−0·139	−23 7 12·86	+5·57	*y*	5
		47·221		11·61		*x*	5
14·72505	−·00859	9 30 29·332	−0·034	−24 26 0·83	+5·79	*z*	5
		29·701		25 54·95		α	5
17·70355	−·00861	9 23 55·545	−0·049	−25 21 9·42	+5·78	β	5
		γ + 3 42·039		γ − 0 47·96		γ	5
		δ + 1 41·183		δ − 4 37·71		δ	5
		ϵ − 1 4·832		ϵ + 8 57·74		ϵ	5
20·72437	−·00863	9 16 49·435	+0·008	−26 14 5·26	+5·81	ζ	5
		49·615		4·83		η	5
		49·473		5·49		θ	5
		ι − 4 4·233		ι − 10 42·90		ι	5
23·73969	−·00865	9 9 17·401	+0·057	−27 3 5·85	+5·78	κ	2
		λ + 0 23·305		λ − 1 12·02		λ	2
26·70023	−·00868	9 1 30·494	+0·014	−27 47 36·82	+5·80	μ	6
		30·818		37·44		ν	6
		ξ − 1 16·764		ξ − 4 9·79		ξ	6
		ο − 2 36·325		ο − 6 19·48		ο	6
		π − 5 18·977		π ÷ 2 30·53		π	6

Assumed Mean Places for 1882·0 *of Stars compared with the Great Comet* (b) 1882, *with Reductions to Apparent Place for the Night of Observation.*

	Right Ascension.	Reduction.	Declination.	Reduction.	Authority.
	h m s	s	° ′ ″	″	
a	10 3 37·016	+2·572	−17 33 21·66	−9·61	Lalande 19797.
b	5 33·145	+2·567	−17 24 41·42	−9·72	Argelander 279^{z}–55^{n}.
c	3 32	+2·571	−17 36 28	−9·59	
d	4 55·923	+2·591	−18 1 18·34	−9·61	Lalande 19834.
e	2 43	+2·599	−17 50 36	−9·57	
f	3 1	+2·598	−17 55 39	−9·57	
g	9 58 42·906	+2·687	−18 52 9·82	−9·41	Argelander 356–41.
h	58 50·485	+2·687	−18 50 23·07	−9·41	,, 356–42.
i	55 45	+2·724	−19 6 8	−9·32	

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	Right Ascension.			Reduction.	Declination.			Reduction.	Authority.
	h	m	s	s	°	′	″	″	
j	9	56	36	+2·720	−19	11	39	−9·33	
k		53	45·720	+2·783	−19	47	32·55	−9·11	Lalande 19559, 19561.
l		57	3·070	+2·771	−19	51	13·48	−9·35	„ 19641.
m		57	20·629	+2·795	−20	15	42·58	−9·34	Argelander 356–39.
n		57	40·312	+2·793	−20	21	35·36	−9·33	„ 356–40.
o		56	9·622	+2·799	−20	23	53·12	−9·28	„ 356–37.
p		48	13	+2·910	−21	17	26	−9·07	
q		43	20·811	+2·925	−21	28	15·58	−8·83	Lalande 19275.
r		47	27·325	+2·950	−21	23	9·30	−9·02	Argelander 283–25.
s		43	8·002	+2·980	−22	7	50·76	−8·88	Lalande 19269.
t		40	51·567	+2·988	−22	6	33·66	−8·80	Argelander 283–16.
u		45	36·817	+2·999	−22	27	56·66	−9·00	„ 283–23.
v		45	47·598	+2·999	−22	24	37·63	−9·03	„ 283–24.
w		39	12·979	+3·051	−22	49	9·58	−8·81	„ 283–14.
x		39	31·702	+3·048	−22	56	31·70	−8·78	„ 283–13.
y		39	15·365	+3·079	−23	1	56·28	−8·88	„ 283–12.
z		30	28·699	+3·228	−24	19	36·54	−8·78	„ 400–138.
α		31	14·925	+3·227	−24	10	37·77	−8·85	„ 281–3 and 400–137.
β		16	16·144	+3·363	−25	27	49·35	−8·43	Melbourne Cat. 1870, 468 } Mean.
β		16	16·134	+3·363	−25	27	49·77	−8·43	Cape Cat. 1880, 4996 } Mean.
γ		20	11	+3·351	−25	20	16	−8·61	
δ		22	12	+3·345	−25	16	20	−8·71	
ε		24	57	+3·332	−25	29	58	−8·74	
ζ		21	25·600	+3·439	−26	3	57·46	−9·01	Argelander 290–129.
η		24	26·772	+3·428	−26	4	36·37	−9·11	Melbourne Cat. 1870, 474.
θ		24	40·192	+3·428	−26	4	23·14	−9·11	Melbourne Cat. 1870, 476.
ι		20	50	+3·441	−26	3	13	−8·99	
κ		5	57·944	+3·578	−26	57	34·26	−8·79	Argelander 352–179.
λ		8	51	+3·568	−27	1	45	−8·89	
μ		5	27·425	+3·668	−27	42	9·78	−9·22	Argelander 352–178.
ν		8	36·369	+3·657	−27	49	6·43	−9·29	„ 352–184.
ξ		2	44	+3·676	−27	43	18	−9·11	
ο		4	3	+3·673	−27	41	8	−9·17	
π		6	46	+3·663	−27	49	58	−9·23	

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Mean Places for 1882·0 *from other sources, not used in deducing the Comet's place.*

	h m s	s	° ′ ″	″	
g	9 58 42·248	+2·687	−18 52 12·35	−9·41	Lalande 19696.
h	58 50·307	+2·687	−18 50 23·72	−9·41	„ 19699.
t	40 51·344	+2·988	−22 6 28·81	−8·80	„ 19209.
u	45 36·905	+2·999	−22 27 53·31	−9·00	„ 19338.
w	39 13·433	+3·051	−22 49 10·45	−8·81	„ 19153,
	39 31·886	+3·048	−22 56 30·72	−8·78	„ 19164.
y	39 14·234	+3·079	−23 1 54·37	−8·88	„ 19154.

The observations were made and reduced by Mr. Graham.

On Photographs of the Great Comet (b) 1882. By David Gill, LL.D., Her Majesty's Astronomer at the Cape of Good Hope.

I have obtained photographs of the Great Comet of this year by attaching to the declination-axis-counterpoise of the 6-in. Grubb Equatorial an ordinary camera with a rapid portrait-lens by Dallmeyer of about 2½ inches aperture and 11 inches focal length.

The attachment was such that any motion given to the telescope tube was common also to the camera. During exposure the image of the comet's nucleus was kept upon the intersection of two webs of the filar micrometer by means of clockwork, aided by the fine slow motions in R.A. and Declination.

In Photograph 3 (which is the most perfectly focussed) the photographic images of the neighbouring stars are elongated in the direction of the comet's motion.

I am indebted to Mr. E. H. Allis, Photographer, Mowbray, for the loan of the camera in question, and for his assistance in the work. I was too much occupied with the observations of *Victoria* and *Sappho* to be able to turn my attention to photographing the comet till after Oct. 11, when the *Sappho* observations were finished.

The successful photographs that have been obtained are :—

No. 1. 1882 Oct. 19^{d} 15^{h} 45^{m} Cape M.T., Exposure 30^{m}.
No. 2. 1882 Oct. 20^{d} 15^{h} 30^{m} „ „ 1^{h}.
No. 3. 1882 Oct. 21^{d} 15^{h} 40^{m} „ „ 40^{m}.

Of these photographs paper copies are enclosed. After Oct. 21 the work was interrupted by moonlight, but it will be resumed at next new Moon.

With more sensitive plates and longer exposure I do not doubt that photographs may be obtained for some time to come.

There is a very marked difference between the photographic magnitude and the apparent magnitude of stars. There is also an apparent difference in the photographic magnitudes caused by errors in the correction of the spherical aberration of the lens,